

ABSTRACT

A modified human TNF α molecule is capable of raising neutralizing antibodies towards unmodified human TNF α following administration of the modified TNF α to a human host, wherein one or more peptide fragments of the human TNF α molecule has been substituted by one or more peptides containing immunodominant T cell epitopes or a truncated form of the molecule containing the immunodominant epitope and one or both flanking regions of the human TNF α -molecule containing at least one TNF α B cell epitope, wherein the substitution introduces a substantial change in the amino acid sequence of any one of the strands of the front β -sheet, in any one of the connecting loops, or in any one of the B', I, or D strands of the back β -sheet.